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Tooth or Implant Supported Zirconia Restorations? – Reproducible Rating of Esthetic Quality

Objectives:

With increasing surgical reliability of implant dentistry and documented high success rates the standards expected from implant-supported dental restorations are rising. The restorative material and the condition of the peri-implant soft tissues appear to be critical determinants. Recently zirconium-dioxide and corresponding full-ceramic CAD/CAM restorations have been introduced to enhance the overall esthetic outcome. Whilst criteria concerning the functional assessment of implants are prevalently employed for the determination of implant success, the use of newer indices for objective evaluation of soft-tissue esthetics must, on the other hand, be checked for validity. The aim of the current study was to measure the reproducibility of different esthetic rating systems and assess the influence exerted by the examiner's degree of dental specialization.

Materials and Methods:

60 examiners (general dentists, oral surgeons, periodontists, dental technicians, and lay people) applied different esthetic rating scores to 40 implant-supported single restorations twice at an interval of 4 weeks. Differences between the two assessments were evaluated with the Spearman's rank correlation coefficient (R). The Wilcoxon signed-rank test was used for comparisons of differences between the ratings. A significance level of $p < 0.05$ was chosen for both tests.

Results:

30,400 individual esthetic ratings have been analyzed. Observer results indicated that the agreement between the first and second rating for all occupational groups varied significantly, depending on the complexity of the scoring system.

Conclusions:

Specific rating systems reproducibly evaluate the esthetic quality of implant restorations and soft tissues with good examiner agreement. However, an effect of observer specialization on rating the overall outcome can be shown. Improved material characteristics, complying with clinicians' and patients' increased demands for highly esthetic results, have contributed significantly to the development of implant abutments made from zirconium-dioxide and corresponding full-ceramic CAD/CAM restorations noted for their tooth-like color, high load strength, tissue tolerability and intra-sulcular design enhancement.